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Designation:

Description:

Ocean water masses have been traditionally characterized by the thermohaline and conservative chemical properties (e.g. preformed nutrients) at their respective source regions. However, water masses also can exhibit characteristic levels of other individual compounds or emerging properties associated to compound classes. In this regard, the objective of this contribution is to characterize the dissolved organic matter (DOM) molecular fingerprint of the water masses present in the Cape Vert Frontal Zone (CVFZ). For this purpose, a set of 133 samples was collected from the surface to 4000 m depth in the CVFZ during the FLUXES I cruise (12 July - 11 August 2017) and isolated by solid-phase extraction (SPE), using styrene divinyl benzene polymer cartridges (PPL). The molecular analysis of these SPE-PPL extracts was performed using Fourier Transform Ion Cyclotron Resonance Mass Spectrometry (FT-ICR MS), a method capable of identifying thousands of molecular formulae in DOM. These analyses have been combined with an optimum multiparameter (OMP) water mass analysis to obtain characteristic molecular indices for the eleven water masses present in the CVFZ, stemming from the subtropical and subpolar North and South Atlantic as well as from the Arctic and Antarctic Oceans. In particular, emerging properties such as the molecular diversity (D), mean molecular mass (MW), mean C:N ratio, aromaticity index (AI), double bond equivalent (DBE), and main molecular groups, as well as different compounds (e.g. Lignin) and individual heteroatoms were quantified.

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DISSOLVED ORGANIC MATTER MOLECULAR FINGERPRINT OF THE WATER MASSES IN THE CAPE VERT FRONTAL ZONE

Category

Scientific Program Abstract > Special Sessions > SS42 The biogeochemistry of dissolved organic matter

Preference: Oral